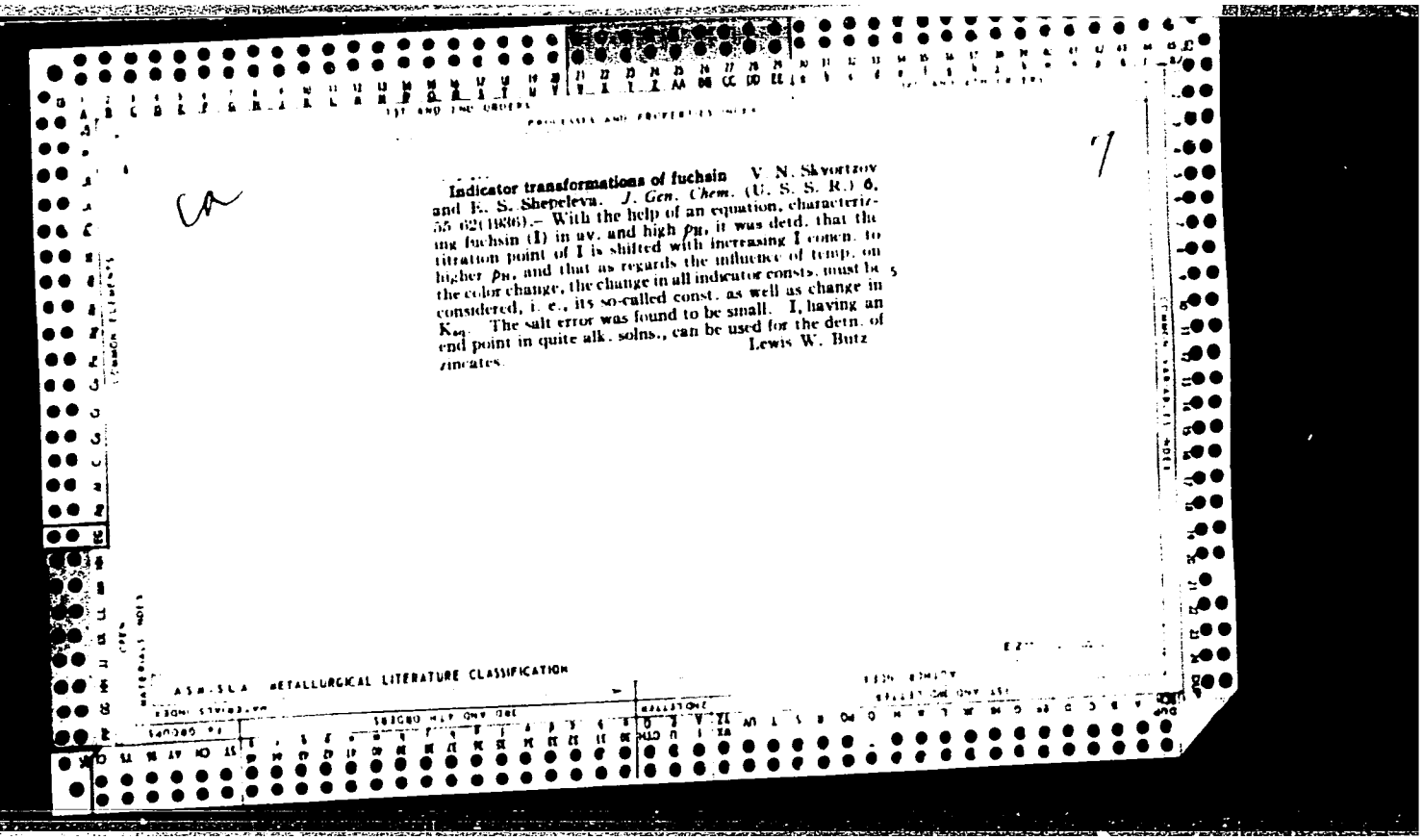
SHEPELEVA, Ye.D.

Complexes of spores (?) from sediments in the Bavly series of the Volga-Ural region. Trudy VNIGNI no.37:7-17 '63. (MIRA 16:8)

SHEPELEVA, Ye.D.; TIMOFEYEV, B.V.

Micropaleophytological characteristics of the Pachelma series and its stratigraphic analogues. Dokl. AN SSSR 153 no.5:1158-1159 D '63. (MIRA 17:1)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologo-razvedochnyy institut, Leningrad, i Vsesoyuznyy nauchno-issledovatel'skiy neftyanoy geologorazvedochnyy institut, Moskva. Predstavleno akademikom D.V. Nalivkinym.



Indicator transformations of fuchsin V. N. Skvortzov and E. S. Shepeleva. *J. Gen. Chem.* (U. S. S. R.) **6**, 55-62(1936).— With the help of an equation, characterizing fuchsin (I) in av. and high p_H, it was detd. that the titration point of I is shifted with increasing I concn. to higher p_H, and that as regards the influence of temp. on the color change, the change in all indicator consts. must be considered, i. e., its so-called const. as well as change in K_{aq}. The salt error was found to be small. I, having an end point in quite alk. solns., can be used for the detn. of zincates.

Lewis W. Butz

PA 27/49T25

USSR/Chemistry - Magnesium Compounds, Jan/Feb 49
Organic
Chemistry - Synthesis

"Study in the Field of Phosphor Organic Compounds: XI, Case of Anomalous Course of the Synthesis of Magnesium Organic Compounds," M. I. Kabachnik, Ye. S. Shepeleva, Inst Org Chem, Acad Sci USSR, 4 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 1

Gives anomalous reaction of halold compound of phosphor ($PSCl_3$) with methyl iodide of magnesium. Basic product of the reaction is a sulfide of the completely methylated diphosphyl, i.e., a substance containing two atoms of phosphor in the molecule.

27/49T25

USSR/Chemistry - Magnesium Compounds, Jan/Feb 49
Organic (Contd)

Good yield of dimethylphosphinic acid is obtained by the oxidation of this sulfide. Submitted 3 Mar 48

27/49T25

SHEPELEVA, YE. S.

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CA

Reaction of benzaldehyde with phosphorus trichloride. M. I. Kabachnik and E. S. Shepeleva (Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1950**, 39-46.—The mode of interaction of aldehydes with PCl_3, which has not been adequately explained by the earlier work of Fossek (*Monatsh.* **5**, 627 (1884)), Page (*C.A.* **6**, 2961), or Conant (*C.A.* **16**, [illegible]), appears to involve the preliminary formation of a "pentavalent" one instead of trivalent P derivs., rather than [illegible]. Thus, BzH first [illegible] ascribed to the 1st reaction stage. [illegible] forms $(PhCHCl)_2P$ [illegible] which on heating undergoes the Arbuzov isomerization into the chlorophosphonate. In this case, the separation of [illegible] makes possible a room temp. isomerization. The theory conforms to the known [illegible] reaction of [illegible] difficult alkylation of PCl_3 and to the known reaction of [illegible] moles of an aldehyde with PCl_3. Mixing 41.2 g. PCl_3 with 30 g. BzH (both freshly distd.) with cooling, followed by heating in sealed tubes 2 hrs. at 195-205°, gave a viscous product, most of which b_5 124-6°, m. 60-1°, [illegible] yield. The residue is a [illegible]. Excess PCl_3 gave [illegible] with lower temps. The [illegible], the [illegible] of which [illegible] I, resulting from the [illegible] product [illegible] corresponding phosphonate. Reaction of PCl_3 [illegible] ratio in the cold yields a [illegible] action of BzH and PCl_3 [illegible] and yields on hydrolysis 2 [illegible] pink oil which cannot be distd. and yields on hydrolysis [illegible] $PhCH(OH)PO(OH)_2$. I (15 g.) [illegible] mols. of BzH and $PhCH(OH)PO(OH)_2$ [illegible] EtOH gave on distn. [illegible] allowed to stand 1-2 days in 18 g. abs. EtOH gave [illegible] 71°, $PhCH(OH)PO$ [illegible] at atm. pressure, then [illegible], n_D^{20} 1.5125, the same is [illegible] $b_{0.5}$ 128-9°, d_4^{20} [illegible] obtained in [illegible] yield when a crude mixt. of [illegible] g. BzH and 10.3 g. PCl_3 is heated 2 hrs. at 195-205°, then treated with EtOH. I (8 g.) with 25 g. MeOH similarly gave 52% $PhCH(Cl)PO(OMe)_2$, b_1 127°, d_4^{20} 1.2811, n_D^{20} 1.5208. Heating [illegible] g. I with 3.25 g. PhOH 6.5 hrs. progressively from 175° to 250° gave much residue and 2 g. $PhCH(Cl)PO(OPh)_2$, b_1 201°, d_4^{20} 1.21, n_D^{20} 1.58[illegible]. Allowing I to stand in [illegible] H_2O until dissolved, followed by evapn. in vacuo at 35-40°, gave 63% $PhCH(Cl)PO(OH)_2$, m. 172-4° (from MePh); the same result occurs after 10 days' exposure of I to atm. moisture (100% yield); the use of boiling H_2O for hydrolysis gives the acid of low m.p., which rises to [illegible] only after many crystns., with considerable Cl not being found in the aq. soln. The Cl acid with Ag_2CO_3 ppts. the di-Ag salt, sol. in HNO_3 and in excess of aq. soln. of the Cl acid; boiling the soln. yields AgCl. $PhCH(OH)PO(OH)_2$ [illegible] g. and 2.01 g. Ag_2CO_3 in H_2O soln., refluxed until the original Ag salt has gradually been transformed into AgCl, gave 1.78 g. AgCl [illegible] and the Ag-free soln. on evapn. [illegible] then the EtOH-C_6H_6, crystd. from C_6H_6-AcOH [illegible] [illegible] g. gave $PhCH(OH)PO(OH)_2$, m. [illegible] [illegible] EtOH and cond. [illegible] with [illegible] g. $PhNH_2$ gave [illegible] the anilino [illegible] of excess $PhNH_2$ [illegible] removal of the $PhNH_2.HCl$, evapn. to 1 g. I in EtOH, [illegible] with dil. HCl, gave 2 g. [illegible] taking up in EtOH, and pptn. with dil. HCl, gave 2 g. $PhCH(Cl)PO(NHPh)_2$, m. 192.4° (from dil. EtOH, then from MeOH). G. M. Kosolapoff

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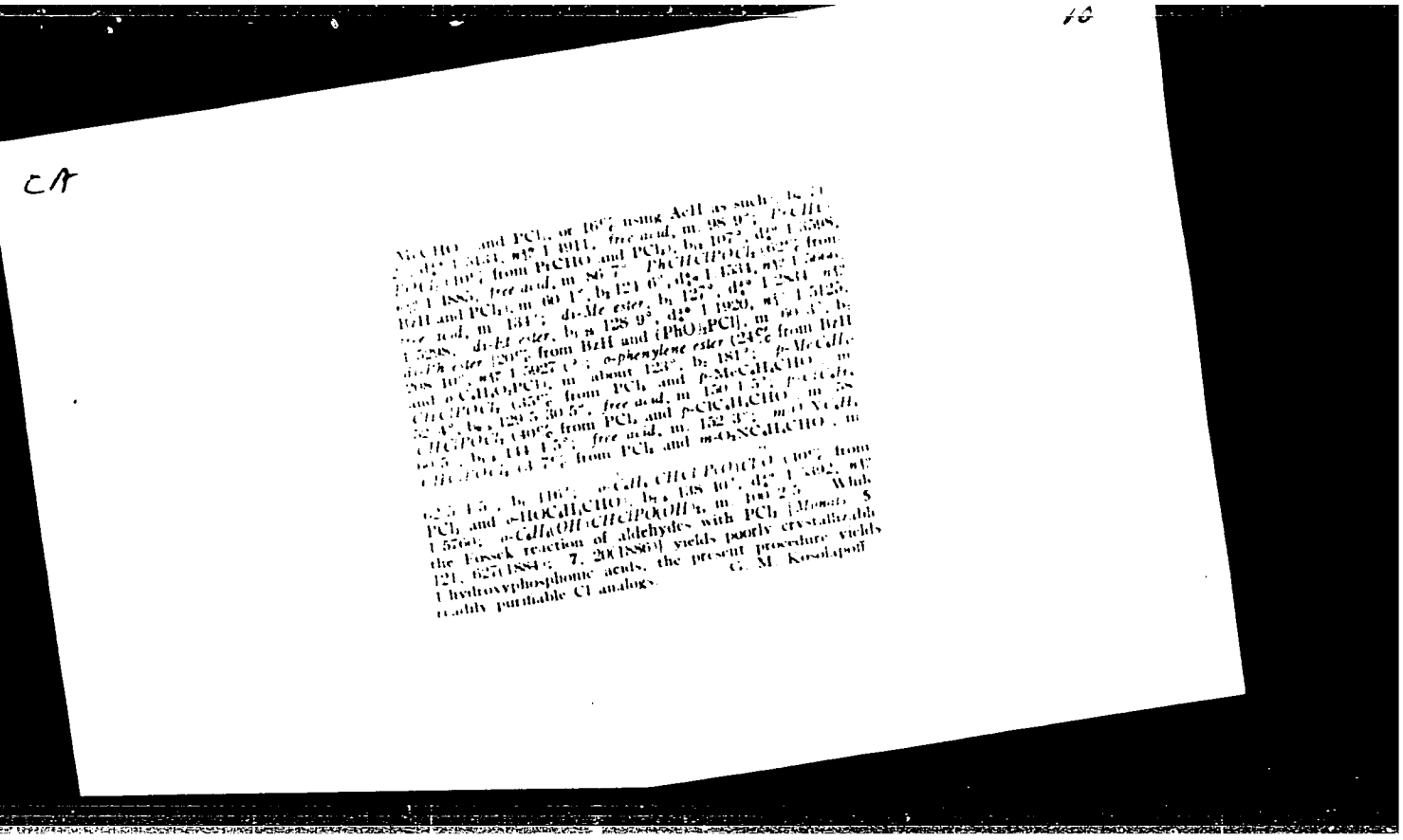
CA

Reaction of aldehydes with halogen derivatives of trivalent phosphorus. M. I. Kabachnik and E. S. Shepeleva. *Doklady Akad. Nauk S.S.S.R.* **75**, 219-22(1950); cf. C.A. **44**, 7257. The formation of 1-chlorophosphonyl dichlorides by high-temp. reaction of PCl_3 with aldehydes and ketones [illegible] with few exceptions. The [illegible] reaction with the nature of the carbonyl compd. and yields vary with the halide used. Aliphatic aldehydes yield much HCl and give poor results, possibly because of crotonic type condensation brought about by PCl_3 as a water-retaining substance. *Chloral* could not be made to react even under very drastic conditions (5 hrs. at 270°). Aromatic aldehydes react well, but $p\text{-}Me_2NC_6H_4CHO$ yields so much tar that no clean product was isolated. $m\text{-}O_2NC_6H_4CHO$ gives little of the desired product and causes considerable oxidation of the PCl_3, yielding colored reduction products of the aldehyde. $o\text{-}HOC_6H_4CHO$ yields much HCl and after 2.5 hrs. at 185-200° gives a tarry mass which on distn. readily gives the cyclic product: $o\text{-}C_6H_4.CHCl.P(O)Cl.O$, which with alcs. opens the ring yielding $o\text{-}C_6H_4(OH)CHCl$[illegible]. The phosphonyl dichlorides readily form the corresponding free acids and esters with H_2O and alcs. [illegible] $PO(OR)_2$. Typical procedure: 1 mole aldehyde and 1-1.5 moles [illegible] P halide are heated in a sealed tube [illegible] hrs. at 190-200° (CH_2O required 250°, PCl_3 for 1 mole of any [illegible]), some others needed but 160-70°; on cooling the viscous liquid was pumped free of HCl at a water pump, then distd. under a good vacuum. Only PrCHO gave a poorly distillable product which was not obtained in pure state. The following products were obtained: $ClCH_2POCl_2$ [illegible], from CH_2O and PCl_3, b_{10} 77-8°, d_4^{20} 1.6361, n_D^{20} 1.4978 (cf. Yakubovich and Ginsburg, C.A. **45**, 2857c); free acid, m. [illegible]; *di-Me ester*, b. 59-60°, d_4^{20} 1.3283, n_D^{20} 1.4425; *o-C₆H₄* [illegible], b. [illegible], m. [illegible]; *di-Et ester*, b. 101°, d_4^{20} 1.1992, n_D^{20} 1.4415; $o\text{-}C_6H_4O_2PCl_3$, m. 56-7°, b. 12. [illegible] $ClCH_2$ [illegible] (18°), from CH_2O and PBr_3, b. 12. [illegible] from CH_2O and [illegible]; $BrCH_2POBr_2$ (75°), from [illegible] 120°; *MeCHClPOCl₂* (44°), from [illegible], d_4^{20} 2.0762, n_D^{20} 1.6100.

1951



SHEPELEVA, E.S.

RT-778 [Investigation into the field of organophosphorous compounds. Part 15]
Issledovanie v oblasti fosfororganicheskikh soedinenii. Soobshchenie XV.
Izvestiia Akademii Nauk SSSR. Otdelenie Khimicheskikh Nauk, (1): 485-491, 1951.

SHEPELEVA, Ye. S. and KABACHNIK, M. I.

"Investigations of Organic Phosphorus Compounds. Report No 15: Reaction of Formaldehyde with Phosphorus Trichloride," Izvestiya Akademii Nauk, Otdeleniye Khimicheskikh Nauk, No 2, 1951, pp 185-190.

Inst. Org. Chem., AS USSR

Translation W - 21625, 6 Mar 52

Chem Abs V48
1-25-54
Organic chemistry

Chem
(3)

Chloromethylphosphonic acid. M. I. Kabachnik and E. S. Shepeleva. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 150–1(1952); cf. *C.A.* 45, 6569*f*, 10191*b*; Prat, *et al.*, *C.A.* 44, 5800*i*.—Heating 200 g. PCl_3 and 30 g. paraformaldehyde in autoclave 10 hrs. at 250° yields 60–5% $ClCH_2POCl_2$, b_{15} 87–8°, b_2 52–3°, n_D^{20} 1.4978, d_{20} 1.6361. This added to 15 parts H_2O (external cooling may be needed in large run) undergoes hydrolysis; the soln. is evapd. on a steam bath, reëvapd. after addn. of H_2O, and kept in a desiccator with KOH to yield crude $ClCH_2PO(OH)_2$, which is purified by soln. in Et_2O-MePh and slow evapn. of the solvents in a vessel with H_2SO_4 and paraffin chips. The acid m. 86–7.5°. G. M. K.

1-28-54

SHEPELEVA, E.S.

USSR/Chemistry

Card 1/1 : Pub. 40 - 13/22

Authors : Kabachnik, M. I., and Shepeleva, E. S.

Title : About the reaction of aldehydes with chlorophosphines

Periodical : Izv. AN SSSR. Otd. khim. nauk 5, 862-867, Sep-Oct 1953

Abstract : The reaction of para-formaldehyde with the most accessible dichlorophosphines - ethyldichlorophosphine and phosphenyl chloride, was investigated. Results indicate that para-formaldehyde reacts with alkyl- and aryl dichlorophosphines resulting in the formation of secondary alkyl (or aryl)-chloromethylphosphinic chlorides. The derivation of free acids and their esters is described. The products obtained from the reaction of dipheylchlorophosphine with para-formaldehyde, are listed. Eight references: 5-USSR and 3-German (1876-1951). Table.

Institution : Academy of Sciences, USSR, Institute of Organic Chemistry

Submitted : December 31, 1952

Shepeleva, E.S.

Synthesis and properties of some esters of chloroalkyl and chloroalkyldithiophosphonic acids. E. S. Shepeleva and P. I. Sanin. *Doklady Akad. Nauk S.S.S.R.* 109, 333-7 (1956); cf. Beeck, *et al.*, *C.A.* 35, 1684⁴; Bannard, *et al.*, *C.A.* 48, 11302g.--Treatment of 2.3 g. Na under Et_2O with 9 g. BuSH gave a suspension of BuSNa which was treated at 0° with 8.5 g. $ClCH_2POCl_2$ in Et_2O; after 4 hrs. at room temp. the mixt. was washed with H_2O and distd. yielding 66% $ClCH_2PO(SBu)_2$, b_3 153-4°, d_{20} 1.1411, n_D^{20} 1.5300. Similarly were prepd. the following esters of mercaptans, while the *O*-alkyl esters were prepd. from $RPOCl_2$ and the alc. (d_{20} and n_D^{20} given): 74% $ClCH_2PO(OCHMe_2)_2$, b_3 73-4°, 1.1175, 1.4340; 64% $ClCH_2PO(OBu)_2$, b_3 112-13°, 1.0832, 1.4420; $ClCH_2PO(OCH_2CH_2CHMe_2)_2$, 70%, b_3 129-30°, 1.0480, 1.4440; 60% $ClCH_2PO(OCH_2CH:CH_2)_2$, b_4 122-3°, 1.1896, 1.4700; 47% $ClCH_2PO(SCH_2CH_2CHMe_2)_2$, b_2 157-8°, 1.0960, 1.5230; 51% $ClCH_2CH_2PO(OBu)_2$, b_3 133-4°, 1.0640, 1.4430; 54% $ClCH_2CH_2PO(OCH_2CH_2CHMe_2)_2$, b_3 139-40°, 1.0344, 1.4430; 40% $ClCH_2CH_2PO(SBu)_2$, b_2 168-70°, 1.1185, 1.5230. The esters were tested in four-ball friction tester with a standard sample of lubricating oil. Esters of chloromethylphosphonic acid increased the critical load bearable by the oil by a factor of 1.5-2; the esters of chloroethylphosphonic acid were less effective. Substitution of S for O in the esters produced no significant change in behavior. Hence, the antiwear properties of the esters rest largely on the content of P and Cl.

G. M. Kosolapoff

Petroleum Inst, A S USSR

[illegible], Y. S., [illegible], [illegible], [illegible], V.V., [illegible], [illegible].V. (Institute of Petroleum, AS USSR, Moscow)

"Use of Organophosphorus Compounds for Increasing the Quality of Lubricants" (Primeneniye fosfororganicheskikh soyedineniy dlya povysheniya kachestva smazochnykh malsey)

Chemistry and Uses of Organophosphorous Compounds (Khimiya i primeneniye fosfororganicheskikh soyedneniy), Trudy of First Conference, [illegible]-10 December 1955, Kazan, pp. 112-123, Published by Kazan Affil. AS USSR, 1957

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599

Author : Sanin, P.I., Shepeleva, Ye.S., Sher, V.V., Ul'yanova, A.V.

Inst : Academy of Sciences USSR

Title : Use of Organophosphorus Compounds to Enhance the Quality of Lubricating Oils.

Orig Pub : Sb.: Khimiya i primeneniye fosfororgan. soyedineniy. M., AN SSSR, 1957, 112-123

Abstract : Description of the results of investigations of the effects of different organophosphorus compounds on the wear-reducing, detergent and anticorrosion characteristics of oil. It was found that lower trialkyl-trithiophosphites and trialkyl thiophosphates, containing C_3-C_5 alkyls, improve the

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USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599

lubricating properties of oil to a greater extent than additives of this type containing long hydrocarbon radicals (for example, n-trioctadecyl trithiophosphate); trialkyl thiophosphates are less active than the trialkyl trithiophosphites. The presence of phosphorus in the molecule of additives of this type, affects, first of all, their capacity of increasing the critical load of the oil, while the presence of sulfur -- the capacity of improving the breaking-in of metal surfaces subjected to friction. It was ascertained that esters of chloromethyl- and beta-chlorethyl phosphinic and thiophosphinic acids, approximate, as wear-reducing additives, the most active thiophosphites and thiophosphates; the action of chlorine in compounds of this type is analogous to the effect of sulfur on the activity of thiophosphites and thiophosphates. The

Card 2/4

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor and Jet Fuels. Lubricants. I-8

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2599

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S/081/61/000/017/149/166
B117/B138

AUTHORS: Sanin, P. I., Shepeleva, Ye. S., Ul'yanova, A. V., Kleymenov, Ye. V.

TITLE: Effect of synthetic lubricating oils additives on frictional wear

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1961, 472 - 473, abstract 17H224 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh. M., AN SSSR, v. 3, 1960, 234 - 239)

TEXT: The relative effect on the seizing load (SL) and on the wear of a number of Cl-, S-, and P-containing additives was studied on a 4-ball friction machine. The additives were tested in the solution of a highly refined mineral oil with a viscosity of 20.8 cst/50°C at a concentration of 6 moles of additive per 100 g of oil. Oleic and stearic acids, as well as methyl stearate, did not change the character of the wear-load curve, nor increase the SL of the pure oil (69 kg). SL were determined for the following additive solutions (in kg): methyl dichlorostearate, 126; tetrachloronaphthalene, 126; chlorinated paraffin $C_{25}H_{51}Cl$, 79; much

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higher chlorinated paraffin $C_{25}H_{40}Cl_{12}$, $(n\text{-}C_3H_7S)_3P$, 110; $(n\text{-}C_{18}H_{37}S)_3P$, 68; $(C_4H_9O)_3PO$, 102; $(C_4H_9S)_3PS$, 69. An introduction of 1, 2, 3, and 4 S atoms in transition from $(C_4H_9O)_3PO$ to $(C_4H_9S)_3PS$ reduced the SL, but decreased the wear with loads above SL. Particularly high SL were obtained for compounds with molecules containing P and CCl_3 groups: $(C_4H_9O)_2P(O)CCl_3$ (the SL is 2.5 times higher than for pure oil), $(CCl_3CH_2O)_3P$ (SL > 300), and tri-(trichloro-tert-butyl)-phosphite (SL > 300). At the same time these compounds reduce wear with loads above SL. [Abstracter's note: Complete translation.]

Card 2/2

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B101/B147

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AUTHORS: Sanin, N. I., Shepeleva, Ye. S., Ul'yanova, A. V., Kleymenov, B. V.

TITLE: Synthesis and properties of antiwear additives to lubricants

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 397, abstract 22M122 (Tr. In-ta nefti. AN SSSR, v. 4, 1960, 98 - 117)

TEXT: A four-ball friction machine was used for studying the effect of various antiwear additives consisting of high-molecular aliphatic esters and organic compounds of S, P, and Cl. The authors employed solutions of the additives (6 mmoles per 100 g) in highly pure mineral oil (viscosity 20.8 centistokes at 50°C). Of no use under heavy load were additives the effect of which was based on adsorption only (high-molecular esters and higher fatty acids). Additives containing Cl (methyl esters of mono- and dichloro stearic acid, tetrachloro naphthalene, fractions of chlorinated paraffin) increased the critical load (CL) (the seizing load), and considerably reduced the wear under loads higher than CL. Additives of the types $(RS)_3P$ and $(RO)_3PS$ were found to reduce CL with increasing length

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Synthesis and properties.

of the alkyl, R(C_3 - C_8); efficient additives of these types should contain R = C_3 - C_5. $(RS)_3P$ proved to be more efficient than $(RO)_3PS$. In additives containing P and S, P mainly increased the CL while S decreased the wear under loads above CL. Phosphinic esters, $R'PO(OR)_2$, proved to be more efficient than phosphoric esters containing no C-P bond. Introduction of Cl in phosphinic and phosphoric esters increased the efficiency of additives, and reduced the wear under loads above CL. Phosphinic and phosphoric esters containing the CCl_3 group were of utmost efficiency. The effect of the CCl_3 group increasing the efficiency of antiwear additives was confirmed by the action of tetrachloro alkanes, $CCl_3(CH_2)_nCl$ (n = 3 - 5). The authors discuss the mechanism of action of antiwear additives containing various active elements and groups. There are 21 references. See also RZhKhim, 1961, 5M233. [Abstracter's note: Complete translation.]

Card 2/2

82511
S/065/60/000/008/003/007
E030/E412

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AUTHORS: Sanin, P.I., Shepeleva, Ye.S. and Kleymenov, B.V.

TITLE: Some Data on the Activity of Additives Containing the CCl_3 Group

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.8, pp.24-28

TEXT: It has been shown that molecules containing phosphorus and CCl_3 groups are exceptionally good friction-reducing additives under high loads. Presumably this is due to the formation of phosphides and chloride layers on the metal. It is not merely the presence of chlorine which imparts activity, since monochloro-alkanes are not particularly effective, but the CCl_3 group as a whole. This group is known to be particularly reactive, as in the action of electrophilic or copper reagents, and in the formation of 1,5,5,6,6,10-hexachlorodecane from 1,1,1,5-tetrachloropentane. The base greases had a kinematic viscosity of 20.8 cs at 50°C. The trichloro compounds were formed by the polymerization of ethylene in the presence of carbon tetrachloride and were added as 6 times millimolar to the grease. The greases were subjected to the four-ball test. Firstly, the effect of the trichloro group was shown by

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Some Data on the Activity of Additives Containing the CCl_3 Group

comparing the base grease, which had a critical load of 64 kg, with α,α,α,ω tetrachloro-alkanes which had critical loads from 100 - 110 (C_5 was as high as 130 kg). This behaviour is analogous to that of CCl_4, which is active, and of monochloro-alkanes, which are relatively inactive. Secondly, the addition of phosphorus was shown to increase the surface activity still further, as shown by comparing the methyl, trichloro and chloro ethylethers of methylphosphonic acid (critical loads less than 170 kg), and the trichloroethyl-diethyl ether of phosphonic acid (130 kg). Increasing the additive concentration fourfold had no effect. Increasing the number of CCl_3 groups produces further striking increases in the high-load properties and in fact no critical loads could be observed with tri (trichloroethyl) phosphate and tri (trichlor-tert. butyl) phosphate, and the mark was only 8 mm in diameter at 300 kg load (30000 kg/cm^2 pressure). Smaller variations in activity and thermal stability were dependent on the position of the CCl_3 group in the molecule. There are 3 figures,

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Some Data on the Activity of Additives Containing the CCl_3 Group

3 tables and 11 references: 5 Soviet and 6 English.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR
(Institute for Petro-Chemical Synthesis, AS USSR)

Card 3/3

3P6 91
S/510/60/014/000/006/006
D244/D307

AUTHORS: Sanin, P.I., Shepeleva, Ye.S., Ul'yanova, A.V., and Kleymenov, B.V.

TITLE: Synthesis and properties of anti-wear additives to lubricating oils

SOURCE: Akademiya nauk SSSR. Institut nefti. Trudy, v. 14, 1960, Khimiya nefti, 98 - 117

TEXT: The authors synthetized the wear-reducing properties of Cl, S and P compounds and also thio-phosphoroorganic and chlorophosphoroorganic compounds. The anti-wear properties were examined by dissolving the additives in a highly refined mineral oil, viscosity 20.8 cs at 50°C. The concentration of all the additives examined was 6 millimoles per 100 g of oil. The four-ball machine was used as a wear-tester with standard 12.7 mm diameter balls from ШХ-9 (ShKh-9) steel. The tests were conducted at 600 rpm. It was shown that the high molecular weight esters and acids which were assumed to have adsorptional anti-wear mechanisms, were not effective during the rubbing under high loads. Chlorinated esters of stearic acid and

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Synthesis and properties of anti-wear ...

also fractions of chlorinated paraffin wax reduced the wear considerably above the seizure load. The best results were obtained with the wax fraction containing about 40 % Cl, the base oil containing about 7 % of the additive. For a series of esters $(R\,S)_3P$ and $(R\,O)_3PS$ the critical load that could be tolerated by the oil blend, decreased with the increasing length of the hydrocarbon radical R. Thus any of the compounds with $R = C_3 - C_5$ could be considered as possible additives. Trialkyl phosphates were less active as additives than trialkyl trithiophosphates. The presence of P and thiophosphate types exerted a predominant influence on their capacity to increase the critical load. The presence of S improved the wear-reducing properties at loads above the critical load. Chlorine in esters of chloralkylphosphorous acids acted in the same direction as S in thiophosphites. Thus the presence in one compound of P and Cl or P and S is very beneficial. The phosphite compounds $R'PO\,(OR)_2$ having a C-P link, were considerably more active than the compounds containing only alkoxy groups, such as phosphites. It was shown that compounds containing the group $-CCl_3$ have high anti-wear activity.

Card 2/3

Esters CCl_3 P $(OR)_2$ increased the critical load to a value more than twice of that for the base oil and decreased the wear considerably in the region of high loads. It was established that the specific activity of the compounds containing CCl_3 group is due to a high reactivity of Cl in the group with metal surfaces, on which a chloride film is formed. The wear reducing properties of additives of the CCl_3 P $(OR)_2$ type is due to the simultaneous action of the reactive Cl and P resulting in the formation of chloride and phosphide films on the rubbing metal surfaces. There are 12 figures and 9 tables.

Card 3/3

80061
S/020/60/132/01/38/064
B011/B126

5.3630

AUTHORS: Sanin, P. I., Voronkov, M. G., Shepeleva, Ye. S., Ionin, B. I.

TITLE: The Interaction Between Dialkyl-phosphorous Acids and Quinones

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 145-148

TEXT: The organophosphorus compounds are highly active as additions to lubricating oils (Refs. 1-3). Some derivatives of dithiophosphorous, phosphoric, and phosphorous acids belong to them. The authors have taken the trouble to obtain organophosphorus compounds which are, amongst other things, also anti-oxidants, which hinder the oxidation of hydrocarbons by atmospheric oxygen. Thus, the authors tried to add acid esters of the phosphorous acid to the quinones. The reaction of dialkyl-phosphorous acids or phosphites with p-benzoquinone can take place in two ways and lead to: a) esters of dihydroxyphenylphosphoric acids (I) and (II), or b) compounds in which phosphorus is bonded with oxygen (III) and (IV) (Ref. 11). The authors have established that dialkyl-p-oxyphenylphosphates are formed on the reaction of dialkylphosphorous acids with p-benzoquinone. As a result, the phosphorous group adds to the oxygen atom of the benzoquinone (see scheme). This addition is accompanied by a conversion of the

Card 1/3

quinoid structure into a benzoid structure. The reaction between dialkylphosphorous acids and α-naphthoquinone is similar. Table 1 shows the melting temperatures and the results of analyses of the compounds produced. They are crystalline substances, soluble in aqueous alkali solutions. They give the characteristic color reaction for phenylhydroxyl with ferric chloride, but no reaction for the carbonyl group. The hydrolysis of the substances obtained with HCl (1:1), and the saponification with alcoholic alkalis at 40-50° gives a yield of 80%. All compounds produced contain only one hydroxyl group. On the basis of the ultraviolet absorption spectra the authors have stated that esters of p-oxyphenyl-phosphorous acid are concerned. As can be seen from table 2, the absorption maximum of the products is shifted towards short waves, and agrees with the maximum of dimethyl-p-methoxyphenylphosphate. Thus, the results given above show that the said substances are really dialkyl-p-oxyphenylphosphates (see scheme). The following were also quoted: V. S. Abramov, A. N. Pudovik, Yu. P. Kitayev, and G. Zametayeva. There are 2 tables and 18 references, 10 of which are Soviet.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petroleum-chemical Synthesis of the Academy of Sciences, USSR)

to give a fraction of technical I in 70% yield ($n^{20}D$ 1.4580, d_4^{20} 1.1996, Cl found 30% as against 34.1% theoretical yield). Technical I is the antiwear additive Хлорэф -40 (Khloref-40), which gave positive test-bench results as a transmission oil additive. [Abstracter's note: Complete translation.]

X

2222

S/152/61/000/004/003/009
B126/B219

15-6600 1583, 2209

AUTHORS: Vinogradov, G. V., Podol'skiy, Yu. Ya., Shepeleva, Ye. S.

TITLE: Examination of mineral oil additives as seizing protectors for steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, no. 4, 1961, 63-67

TEXT: In this article, a new method of determining the effect of additives on seizing and welding through friction of metals is described. This method is based on a continuous change in the sliding speed over a wide range. The tests were carried out on a four-sphere device with automatic recording of the friction coefficient. The speed variation of the upper sphere from 0 to $19.5 \cdot 10^3$ rpm was accomplished by a specially constructed appliance. The spheres had 12.7 mm in diameter and were made of ШХ6 (ShKh6) steel hardened to 62 R_c; all the experiments were carried out at 20°C. The naphthenic paraffin fraction of the oil MC-14 (MS-14) was used as a base oil, with the following additives: 1) 0.15 mole/l dibenzyldisulfide, 2) 0.05 mole/l 1-trichloro-5-methylpentane, 3) 0.05mole/l

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PHASE I BOOK EXPLOITATION SOV/6034

Konferentsiya po khimii i primeneniyu fosfororganicheskikh soyedineniy. 2d, Kazan', 1959

Khimiya i primeneniye fosfororganicheskikh soyedineniy; trudy (Chemistry and Use of Organophosphorus Compounds; Conference Transactions) Moscow, Izd-vo AN SSSR, 1962. 630 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial.

Resp. Ed.: A. Ye. Arbuzov, Academician; Ed. of Publishing House: L. S. Povarov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This collection of conference transactions is intended for chemists, process engineers, physiologists, pharmacists, physicians, veterinarians, and agricultural scientists.

COVERAGE: The transactions include the full texts of most of the scientific papers presented at the Second Conference on the Chemistry and Use of

Card 1/14

detergents, anticorrosion agents, antiwear additives, as well as serve as demulsifiers, antioxidants, and depressants. Methods for preparing industrial additives by synthesis are pointed out and described.

SHEPELEVA, Ye.S.; SHER, V.V.

Collected works of the Scientific and Technical Conference on "Additives to lubricants and fuels." Reviewed by E.S.Shepeleva, V.V.Sher. Neftekhimiia 2 no.3:420-423 My-Je '62. (MIRA 15:8)
(Lubrication and lubricants--Additives)

SHEPELEVA, YE.S., ULYANOVA, A.V., SHER, V.V., KLEYMENOV, B.V.,

Synthesis of friction wear-reducing additives and investigation of the mechanism governing their action

Report to be summitted for the Sixth World Petroleum Congress, Frnakfurt, 16-26 June 63

SANIN, P. I.; SHEPELEVA, Ye. S.; MANNIK, A. O.; KLEYMENOV, B. V.

"Chemical modification of friction surfaces."

report submitted to Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

SANIN, P. I.; SHEPELEVA, Ye. S.; MANNIK, A. O.; KLEYMENOV, B. V.

"Chemical modification of friction surfaces."

report presented at the Intl Lubrication Conf, Washington, D.C., 13-16 Oct 64.

Inst of Petrochemical Synthesis, AS USSR, Moscow.

L 51814-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5017013 UR/0204/64/004/006/0899/0905

20
19
13

AUTHOR: Myannik, A. O.; Shepeleva, Ye. S.; Sanin, P. I.

TITLE: Synthesis and properties of some esters of phosphoric, thiophosphoric and phosphinic acids

SOURCE: Neftekhimiya, v. 4, no. 6, 1964, 899-905

TOPIC TAGS: ester, phosphoric acid, phosphinic acid, organic sulfur compound, organic synthetic process

ABSTRACT: A number of esters of phosphoric, thiophosphoric, and phosphinic acids were synthesized and described. Esters of thiophosphoric acid containing thiol sulfur were prepared from sodium salts of dialkylthiophosphoric acids and alkyl halides, the salt with thione structure giving an ester with a thiol structure. Esters of thiophosphoric acid containing thione sulfur were produced by various methods: triethylthione phosphate by the reaction of sodium ethylate and phosphorus thiochloride; diethylbutylthione phosphate from the chloride of diethyl thiophosphoric acid. Esters containing the trichloromethyl group were produced by a scheme including the reaction of sulfur with the correspond-

Card 1/2

L 51814-65

ACCESSION NR: AP5017013

ing phosphite; esters of phosphinic acids were produced from the corresponding dichlorides of phosphinic acids and alcohols. The activity of the esters as additives for reducing wear under conditions of high loads were found to depend on the structure of the ester. Esters containing thiol sulfur are more active than esters containing thione sulfur. Esters containing the trichloromethyl group are the most active.
Orig. art. has: 11 formulas, 5 graphs, 2 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR (Institute of Petro-Chemical Synthesis AN SSSR)

SUBMITTED: 29Apr64 ENCL: 00 SUB CODE: OC, GC

NR REF SOV: 009 OTHER: 007 JPRS

Card 2/2

EWT(m)/EWP(j)/T DJ/RM

ACC NR: AP6030551 (A, N) SOURCE CODE: UR/0413/66/000/016/0031/0031

INVENTOR: Sanin, P. I.; Shepeleva, Ye. S.; Borodach, M. S.; Myannik, A. G.; Vainshteyn, S. L.; Petyakina, Ye. I.; Vinogradova, I. E.

ORG: none

TITLE: Preparative method for bis(trichloroalkyl) esters of alkylphosphonic acids. Class 12, No. 184944 [announced by the Institute of Petrochemical Synthesis, AN SSSR (Institut neftekhimicheskogo sinteza AN SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 31

TOPIC TAGS: lubricant additive, mineral oil, alkylphosphonic acid

ABSTRACT: An Author Certificate has been issued for a preparative method for bis(trichloroalkyl) esters of alkylphosphonic acid of the general formula $RP(O)[O(CH_2)_nCCl_3]_2$, where R is an alkyl group and n = 1, 2, 6, 8. To obtain such esters suitable as additives to mineral oils, alkylphosphonic dichlorides are treated with trichloroalkyl alcohols in the presence of an organic base, e.g., pyridine. [SM]

SUB CODE: 07, 11/ SUBM DATE: 05May65/ ATD PRESS: 5172

Card 1/1 UDC: 547.26'118.07

ACC NR: AP6[illegible] SOURCE CODE: UR/0413/66/000/014/0024/0024

INVENTOR: Samin, P. I.; Shapeleva, Ye. S.; Borodach, M. S.; Myannik, A. O.; Kagan, Yu. S.; Gel'fer, A. P.; Paykin, D. M.; Gamper, N. M.

ORG: none

TITLE: Preparation of esters of phosphoric and thiophosphoric acids. Class 12, No. 183751 [announced by Institute of Petrochemical Synthesis, AN SSSR (Institut neftekhimicheskogo sinteza AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 24

TOPIC TAGS: insecticide, chloroalkyl phosphate, chloroaliyl thiophosphate, ester, phosphoric acid

ABSTRACT: In the proposed method for the preparation of herbicides, the phosphoric and thiophosphoric esters of the general formula:

$$CCl_3(CH_2)_nY\underset{\underset{X}{\|}}{P}(OR)_2,$$

(where X and Y are O or S; n = 1, 4, 6, 8; and R is an alkyl) are obtained by the reaction of trichloroalkyl alcohols with tetrachloroalkanes [sic]. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 21Jun65/

Card 1/1 UDC: 547.26'118.07

SHEPELEVICH, V.

Our practice in building with clay and straw mortar. Sel'.stroi. 11 no.6:18-19 Je '56. (MLRA 9:9)

1.Starshiy inzhener Upravleniya po stroitel'stvu v kolkhozakh Bashkirskoy ASSR.
(Building materials) (Farm buildings)

SHEPELEVSKAYA, N.N. [Shepelevs'ka, N.M.] (Kiiv).

Generalized method for reducing the solution of the axisymmetrical problem of underground water flow to the solution of the plane problem [in Ukrainian with summaries in Russian and English]. Prykl. mekh. 4 no.1:87-96 '58. (MIRA 11:4)

1. Kiivs'kiy politekhnichniy institut.
(Water, Underground)

L 203-65 EWT(1)/EWP(m)/EPF(n)-2/EWA(d) Pd-1/Pu-4 WW
ACCESSION NR: AP5017072 UR/0198/64/010/005/0477/0483 37 36

AUTHOR: Kil'chevs'kyy, M. O. (Kil'chevskiy, N. A.)(Kiev); Shepelevs'ka, N. M. (Shepelevskaya, N. N.)(Kiev)

TITLE: Approximate solutions of certain hydroelastic problems

SOURCE: Prykladna mekhanika, v. 10, no. 5, 1964, 477-483

TOPIC TAGS: fluid mechanics, hydrodynamics, surface geometry, differential equation, integral equation

Abstract: A method in which a shell-liquid system is approximately replaced by a system having a finite number of degrees of freedom and allowing the use of the Euler-Lagrange principle has been studied. After analyzing the constraints imposed on the system, the authors show that from the conditions at the free surface there follows an equation of nonholonomic constraint which does not allow the application of the classical Ostrogradskiy-Hamilton and Euler-Langrange principles. However, by averaging over the volume enclosing the possible locations of the free surface, the above-mentioned constraint is replaced by a geometric constraint. This simplification makes possible the elimination (using the energy integral) of the relative velocity components (within the nonviscous fluid) from the

Card 1/2

L 52203-65
ACCESSION NR: AP5017072

expression for the kinetic energy of the system. This, in turn, makes possible the use of the Euler-Lagrange principle in place of the Ostrogradskiy-Hamilton principle. The resulting system of integral-differential equations is a generalization of the well-known Jacobi equations.

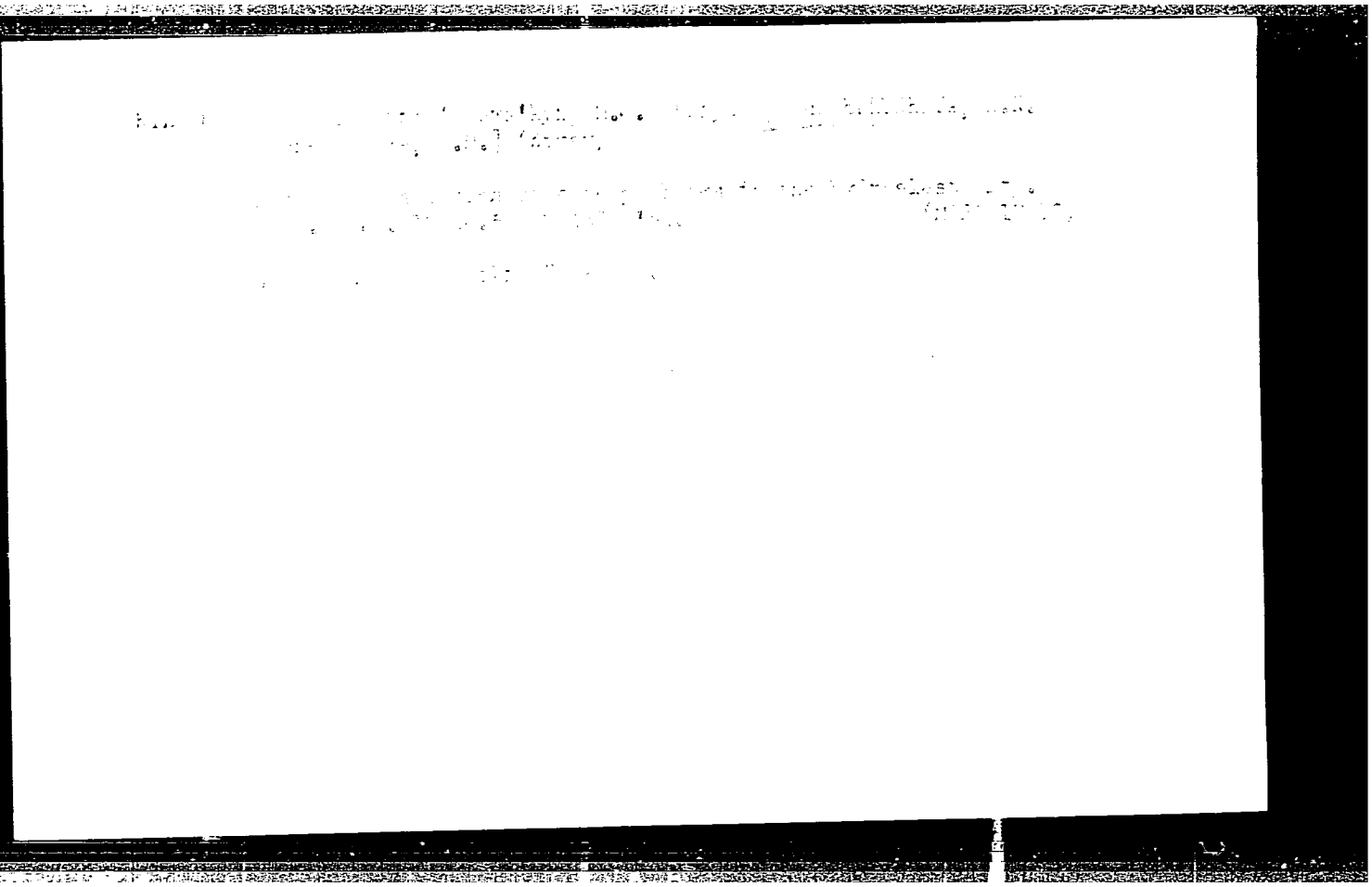
Orig. art. has 4 formulas.

ASSOCIATION: Instytut mekhaniky AN URSR (Mechanics Institute, AN URSR)

SUBMITTED: 18Oct63 ENCL: 00 SUB CODE: ME, MA

NO REF SOV: 005 OTHER: 000 JPRS

Card 2/2



SHEPELEVSKIY, A. A

"The Computation of Gradients on the Earth's Surface," Izvestiya OGO, 1935 (1934), No 2-3, pp. 56-71.

SHEVELEVSKIY, A. A.

"Accuracy of Temperature Determination in the Free Atmosphere,"
Trudy NIU GuGMS, SeriesI, No 19, 1945

SHEPELEVSKIY, A.

DROZDOV, O. and SHEPELEVSKIY, A., "Theory of Interpolation in the Stochastic Field of Meteorological Elements, and Its Application to Problem of Meteorological Charts and Rationalizations of Networks", Works of Sci-Res Institution of the Main Administration of the Hydrometeorological Service SSSR, Series 1, No 13, 1946 (65-115).
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

SHEPELEVSKIY, M.I. [Shepelevs'kyi, M.I.], inzh.

Radioactive tracers. Nauka i zhyttia 8 no.11:15-19 N '58.
(MIRA 13:5)

(Radioactive tracers)

S/114/60/000/007/006/009
E194/E455

AUTHORS: Verbin, D.S., Engineer and Shepilevskiy, V.M., Engineer

TITLE: Automatic Welding of Steam Turbine Diaphragms in an Atmosphere of Carbon Dioxide at the Leningrad Metal Works (LMZ)

PERIODICAL: Energomashinostroyeniye, 1960, No.7, pp.29-31

TEXT: Welding of turbine diaphragms calls for accurate work of high quality. The following grades of steel are used in diaphragms for the body: 12ХМФ (12KhMF), 12МХ (12MKh), 20ХМ (20KhM), 15ХМА (15KhMA), МЦ3 (MSt3); for the rims, the same grades except 15KhMA; for the blades, 1Х13 (1Kh13) and 15Х11МФ (15Kh11MF); for shrouds, 1Х13 (1Kh13); and for baffles, MSi3. Automatic welding in a carbon dioxide atmosphere has now been successfully developed for the following combinations of steel: MSt3 - 1Kh13; 12MKh - 1Kh13; and 12MKh - 12MKh. For welding parts of diaphragms made of steel MSt3 - 1Kh13, the welding wire is grade СВ08Г2СА (SV08G2SA) and for steels 12MKh - 1Kh13 and 12MKh - 12MKh wire, СВ08ХГСМА (SV08KhGSMA). Previously, welding was done by hand and working conditions were very difficult. The main defects of hand welding were that the root

S/114/60/000/007/006/009
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere of Carbon Dioxide at the Leningrad Metal Works (LMZ)

initial installation was found to have several defects and the method of centering and fixing the diaphragms was improved. Special burners were developed to ensure reliable gas protection of the molten metal to a depth of 75 mm and ultimately burners with lateral gas delivery were adopted. Delivery of gas from both sides was found to be the most reliable. By the end of 1958, welding conditions were determined by laboratory investigations of diaphragms with the following combinations of steel 1Kh13 - 12KhM and 1Kh13 - MSt3. Physical tests and chemical analysis of the weld metal gave satisfactory results and the diaphragm geometry was satisfactory. Details are given of the welding conditions that were found most satisfactory. The quality of the carbon dioxide is important, at present use is made of food quality carbon dioxide to standard TOCT8050-56 (GOST8050-56) which does not, however, meet all requirements particularly in respect of water content. A number of steps are taken to prevent water reaching the arc zone. Recently, the works has received two instruments for checking the

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S/114/60/000/007/006/009
E194/E455

Automatic Welding of Steam Turbine Diaphragms in an Atmosphere of Carbon Dioxide at the Leningrad Metal Works (LMZ)

improving the quality of the product. There are 4 figures and 2 tables.

Card 5/5

SHEPELIN, O. P., Cand of Med Sci -- (dis) "Influence of the Impulsive and Stable Noise on the ISeparate Function ofthe Organism in Both Production and Experimental Conditions," Leningrad, 1959, 17 pp (Leningrad Sanitary-Hygiene Institute) (KL, 6-60, 126)

SHEPELIN, O.P., aspirant

Problem of the effect of pulse noise on workers in industrial conditions. Gig.i san. 24 no.8:26-32 Ag '59. (MIRA 12:11)

1. Iz kafedry obshchey gigiyeny Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i laboratorii po bor'be s proizvodstvennym shumom Vsesoyuznogo instituta okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzovVTsSPS (Leningrad).
(NOISE, effects)

SHEPELIN, O.P.

Study of the influence of impulse and stable noise on the body.
Trudy LSGMI no.58:237-272 '60. (MIRA 14:11)
(NOISE--PHYSIOLOGICAL EFFECT)

SHEPELIN, O.P., assistent

Effect of pulsating and constant noise on the organism under experimental conditions. Gig.i san. 26 no.3:25-31 Mr '61. (MIRA 14:7)

(NOISE--PHYSIOLOGICAL EFFECT)

SHEPELIN, O.P., kand.med.nauk

Comments on the article by V.M.Grigor'ev, Candidate of Medical Sciences, on "Some problems in the hygiene aspects of industrial noises". Gig. i san. 26 no.11:87-88 N '61. (MIRA 14:11)

1. Iz Blagoveshchenskogo meditsinskogo instituta.
(NOISE--PHYSIOLOGICAL EFFECT) (INDUSTRIAL HYGIENE)
(GRIGOR'EV, V.M.)

SHEPELIN, O.P., kand. med. nauk

Physiological and hygienic bases for the study and determination of standards for impulse noise. Gig. sanit. 28 no.2: 85-88 '63 (MIRA 17:2)

1. Iz Blagoveshchenskogo gosudarstvennogo meditsinskogo instituta.

25(1) SOV/115-59-8-21/33

AUTHOR: Shepelin, S. G.

TITLE: A Portable Device for Checking Alternating Current Voltmeters and Ammeters

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 8, p 40 (USSR)

ABSTRACT: The electrician of a plant laboratory, V. A. Vorontsov, suggested a portable device for checking alternating current ammeters measuring up to 50 amps and voltmeters up to 450 volts, installed on instrument panels. The purpose of this equipment is to eliminate the removal of the instruments from the panel and transporting them to the laboratory for checking. The device consists of a case in which the following instruments are mounted: Ammeter AST, 2.5 - 5 amps; voltmeter ASTV, 150 - 300 volts; additional DV resistors for expanding the measuring range of voltmeter to 450 and 600 volts; current transformer UTT-5 with a primary current of 15, 50, 100, 150, 200, 300 and 600 amps and 5 amps secondary current; laboratory autotransformer LATR-2; load transformer with a 220-volt primary coil. The application of this device at Vorontsov's plant resulted in

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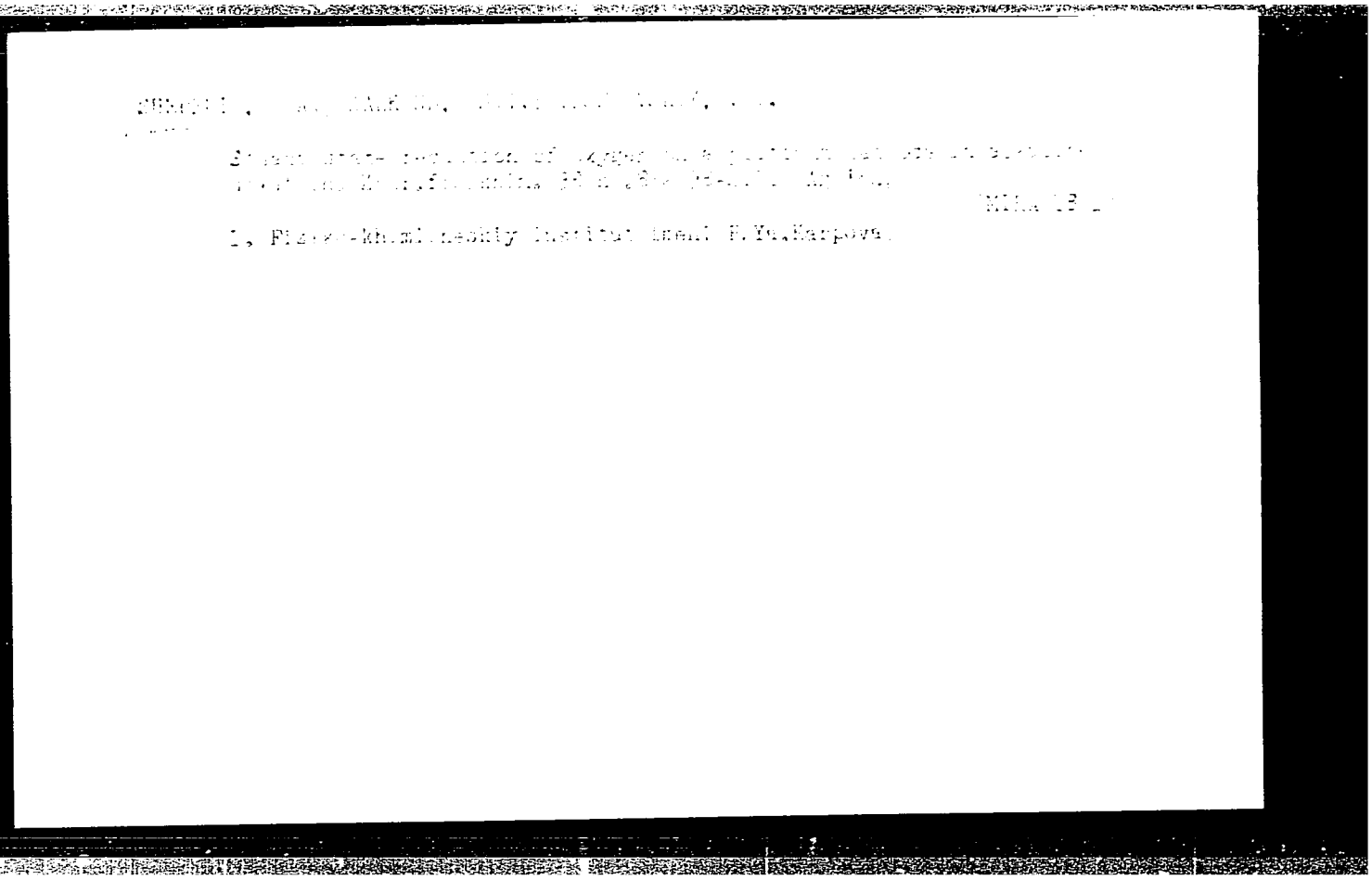
SOV/115-59-8-21/33

A Portable Device for checking Alternating Current Voltmeters and Ammeters

an annual saving of 7,000 rubles. A note from the editor says that the checking of ammeters and voltmeters is performed faster in laboratories on stationary devices than by means of the described equipment. Consequently, this device should be introduced at plants only in case there are considerable difficulties in removing panel instruments for checking.

Card 2/2



SHEPELIN, V.F., inzh.

Calculation of parameters and construction of mechanical characteristics of an automatic control system with a magnetic power amplifier. Elektrichestvo no.11:18-22 N '65.
(MIRA 18:11)

1. ChETNII.

SHEPELOV, L., mayor

This must be adopted. Voen.sviaz. 16 no.4:42 Ap '58. (MIRA 11:4)
(Radio, Military--Equipment and supplies)

SHEPELOV, L., mayor

We study reception and transmission simultaneously. Voen. vest. 40 no. 1:101-102 Ja '61. (MIRA 13:12)
(Radiotelegraph)

Shepelov, M.B.

USSR/Physiology of Human and Animal - Metabolism R-3

Abs Jour : Referat Zhur - Biologii, No 16, 1957, 70436

Author : Gordon, B.G. , Shepelov, M.B.
Title : Ammonia and Glutamine Content of the Blood of Cats with Different Kinds of Anastamoses, Leveloping After Constriction and Complete Closure of the Portal Vein.

Orig Pub : Bull. experim. biol. medizini, 1956, 42, No 12, 23-28

Abstract : Blood of animals was drawn 3-5 hrs after meat-meal on the 3-5 day after applying of constricting ligature, then after 3 weeks in presence of several anastomoses, and 5-7 days after complete ligature of the portal vein. Operative action on the portal vein, led to an increase in the blood of NH_3 (aver. plus 106%), and of glutamine (plus 31%); particularly prominent in cases of complete closure of the portal vein and a considerable development of porto-caval anastamoses, and the least in the development of the hepato-lobal anastamoses. It is

Card 1/2 - 89 -

USSR/Physiology of Human and Animal - Metabolism R-3

Abs Jour : Referat Zhur - Biologii, No 16, 1957, 70436

proposed that for experimental purposes that the Pavlov apparatus should be substituted by a simpler approach- that of stenosis, following it by a complete ligature of portal vein. The porto-caval anastamoses, in the opinion of the author, can act as the pavlovian fisturae.

Card 2/2 - 90 -

USSR / Cultivated Plants. Fruit Trees. Small Fruit Plants. Nut Trees. Tea. M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25020

Author : Shepel's'ka, O. G.
Inst : Not given
Title : Effectiveness of Mineral Fertilizers at Different Methods of Application in Young Orchards

Orig Pub : Byul. nauk.-tekhn. inform. po sadivnytstvu, 1957, No 4, 25-28

Abstract : Methods for the application of mineral fertilizers in young orchards were investigated by the Mleyev Experimental Station of Horticulture in the course of 6 years. In the experiments were the variants: without manure, NPK, at the rate of 60 kg/ha into

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USSR / Cultivated Plants. Fruit Trees. Small Fruit Plants. Nut Trees. Tea. M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25020

apertures at a depth of 35-40 cm (4 apertures on 1 m); NPK, at the rate of 60 kg/ha at the furrow to a depth of 30 cm, and NPK, at the rate of 60 kg/ha under the plow to a depth of 20-22 cm. Once in 3 years on the entire area, and also on that under control, 20 t/ha of manure was introduced. The mineral fertilizers were applied yearly in autumn. The application of fertilizers under the plow in the period of autumn plowing was most effective. By this method of fertilizer application, the root system is not impaired, and it utilizes the fertilizers more energetically. -- A. M. Shevchenko

Card 2/2

SIMIRENKO, Lev Platonovich [deceased]; SHEPEL'SKIY, A.I., kand. sel'-khoz. nauk, glav. red.; KOVTUN, I.M., kand. sel'khoz. nauk, zam. glav. red.; POSTYUK, A.V., zam. glav. red.; RODIONOV, A.P., doktor biol. nauk, zam. glav. red.; DEM'YANETS, Ye.F., starshiy nauchnyy sotr., red. toma; LISOVENKO, L.T., kand. biol. nauk, nauchnyy sotr., red. toma; NIKONENKO, M.N., kand. biol. nauk, red. toma; POSTOYUK, A.V., red.; DEREVYANKO, G.S., tekhn. red.

[Pomology in three volumes; apple, pear, stone fruits] Pomologiia v trekh tomakh; iablonia, grusha, kostochkovye porody. Kiev, Izd-vo Ukrainskoi Akad. sel'khoz. nauk. Vol.1. [Apple] IAblonia. 1961. 578 p. (MIRA 15:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut sadovodstva (for Dem'yanets, Lisovenko).

(Apple--Varieties)

[illegible]'SKIY, I.F.; BIL[illegible], I.I.

Long use of the Mar'ianchik filters. Sakh.prom. 31 no.8:43-44 Ag '57. (MLRA 10:8)

1.Mironovskiy sakharnyy zavod.
(Filters and filtration)

SHEPSI.'SKIY, M. Ya.: Master Tech Sci (diss) -- "Investigation of the elastic-plastic operation of steel beams reinforced before loading and under load". Khar'kov, 1959. 18 pp (Min Higher Educ Ukr SSR, Khar'kov Construction Engineering Inst), 150 copies (KL, No 11, 1959, 120)

RYZHENKO, Ivan Maksimovich, kand. tekhn. nauk, dots.; NEVYAZHSKIY, Ya.I. , prof., retsenzent; BRILING, R.S., kand. tekhn. nauk, retsenzent; GULYAYEV, P.V., kand. tekhn. nauk, dots., retsenzent; NIKOLAYEVSKIY, G.K., kand. tekhn. nauk, dots., retsenzent; SHEPEL'SKIY, P.F., dots., otv. red.; LOS', T.A., red.; SHILYANSKAYA, T.M., tekhn. red.

[Orthogonal and axonometric sketching]Ortogonal'noe i aksonometricheskoe eskizirovanie. Khar'kov, Izd-vo Khar'kovskogo univ., 1960. 118 p. (MIRA 15:10)
(Mechanical drawing)

PHASE I BOOK EXPLOITATION SOV/4266

Progressivnaya tekhnologiya i vysokoproizvoditel'nyy instrument; opyt KhTGZ imeni Kirova (Advanced Processing and Highly-Productive Tools: Experience of the Khar'kov Turbogenerator Plant imeni Kirov) Moscow, Mashgiz, 1960. 155 p. 5,500 copies printed.

Reviewer: P. Ye. Dudnik Engineer; Ed.: M. S. Sorokin, Chief Ed. (Southern Division, Mashgiz); V. K. Serdyuk, Engineer.

PURPOSE: This booklet is intended for technical personnel and innovators.

COVERAGE: The booklet discusses the experience of innovators and technical personnel in introducing advanced processes and machine tools at the KhTGZ imeni Kirov (Khar'kov Turbogenerator Plant) for the manufacture of steam turbine rotors, for tapping coarse threads, processing steam turbine blades. Experience in introducing artificial cooling for interference fits, and in mastering the manufacture of welded steam-turbine rotors is described. The

Card 1/3

Advanced Processing (Cont.) SOV/4266

booklet covers the advances in technology developed and introduced at the factory in the last few years. No personalities are mentioned. No references are given.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 3/3

VK/mj/gc
11-14-60

28945

11100

S/114/61/000/011/002/003
E194/E555

AUTHOR: Shepel'skiy, P.F., Engineer

TITLE: Mechanisation of the machining of complicated shaped surfaces

PERIODICAL: Energomashinostroyeniye, 7, no.11, 1961, 31-33

TEXT: Existing methods of machining turbine blades include milling with cylindrical milling cutters having spiral teeth, shaping, or planing combined with turning. These methods are slow and not accurate enough. It is considered that the quickest methods of machining the shaped surfaces of turbine blades are: (1) blades of 10-200 mm long should be machined simultaneously over the entire length, or in two passes, using conical or shaped milling cutters, depending upon the blade design, and a flat template. (2) Blades of length 140 mm and upwards should be machined with shaped milling cutters covering the entire width of the blade profile, using one or two flat templates. As almost no special machines are made for machining steam turbine blades, the works was obliged to design and make a number of fixtures for this kind of machining. Fig.4 shows a semi-automatic device for milling the external profile of blades with a spiral milling cutter. The

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following notation is used: 1 — the blade; 2 - a hydraulic cylinder; 3 - machine table; 4 - rotating table; 5 - template. The blade is fixed so that the centre of rotation of the table coincides with the centre of the external profile of the blade. The flat template is designed in polar coordinates and governs the position of the milling cutter. With this fixture the machining time was 0.34 hours against 1.46 hours with the usual method, and the accuracy was of the required standard. Fig.5 shows a diagram of templates for a semi-automatic fixture on a horizontal milling machine, type A663B (A663V). This is a single-spindle machine whose arbor can be moved vertically up and down a column. In the diagram, 1 denotes the template for turning the part and 2 the template for milling. A rotating cradle with clamp is fixed to the machine table, which is fed horizontally. The vertical template is fixed to the table and acts through a roller and adjustable collar on to the spindle stock of the machine, which is disengaged from the vertical feed screws. Thus the shaped milling cutter, which covers the whole width of the blade profile, can move vertically, repeating the template curves. The second horizontal template is also fixed to the machine table and is

designed to rotate the cradle of the fixture and with it the part being machined. In this way, using two flat templates, it is possible to mill the internal and external shaped surfaces of steam turbine blades which vary both in section and in twist. The equipment has been designed and made at the KhTGZ and is shown diagrammatically in Fig.6. The machining time for one passage of a blade 740 mm long is 32 minutes which is much faster than could be achieved on any planing machine. After adjusting the templates the minimum grinding tolerance of the profile was reduced to 0.7 mm which is also better than can be achieved by planing, although it is still greater than required (0.3 mm). The milling cutter design is not yet altogether satisfactory, and even when skew-teeth were used the output was still not good enough. Special skew-teeth milling tools are now being designed with a spiral angle of 25-40° and a front angle of 10-30° which should increase the output by at least 50% while preserving the necessary accuracy. There are 6 figures.

SHEPEL'SKIY, Yu.F. [Shepel's'kyi, IU.F.]

Baceteriological problems of the sugar industry. Khar.prom. no.1:81-83 Ja-Mr '62. (MIRA 15:8)
(France--Sugar--Bacteriology)

ACC NR: AR6036136 (N) SOURCE CODE: UR/0398/66/000/010/A058/A058

AUTHOR: Shepel'skiy, Yu. L.

TITLE: Nomogram for determining the heat-insulation thickness of marine piping systems

SOURCE: Ref. zh. Vodnyy transport, Abs. 10A490

REF SOURCE: Tr. Leningr. in-ta vodn. transp., vyp. 87, 1966, 142-143

TOPIC TAGS: shipbuilding engineering, heat insulation, ship component, pipe, graphic technique

ABSTRACT: A calculation nomogram for determining the heat-insulation thickness of marine piping systems is discussed. The nomogram can be used by design bureaus and technical departments of shipbuilding plants.

SUB CODE: 13/ SUBM DATE: none/

Card 1/1 UDC: 629.12.06

L 15213-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(h) JD

ACC NR: AP6002912 SOURCE CODE: UR/0286/65/000/024/0074/0074

INVENTOR: Shepelyakovskiy, K. N.; Stroganov, K. V.; Shklyarov, I. N.; Orlov, I. V.; Nikonov, V. F.; Assonov, A. D.

ORG: none

TITLE: Steel for surface-hardened parts. Class 40, No. 177083

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 74

TOPIC TAGS: steel, surface hardened steel, manganese containing steel, silicon containing steel, chromium containing steel, shallow hardenable steel

ABSTRACT: This Author Certificate introduces a steel for surface-hardened parts containing 0.4—1.2% carbon and alloyed with manganese, silicon, and chromium. To obtain steel with a specified hardenability, one of three alloying elements is added in a specified amount and the content of the other two is limited. For example, in steel containing 0.3—1.4% manganese, the chromium and silicon contents are limited to 0.15% and 0.17%, respectively. Steel with 0.3—1.4% silicon should contain 0.15% chromium and 0.20% manganese, and steel with 0.3—1.8% chromium should contain 0.20% manganese and 0.17—0.27% silicon. [AZ]

SUB CODE: 11/ SUBM DATE: 29Dec60/ ATD PRESS: 4190

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SHEFELIANOVSKIY, L. G. and S. E. RYSKIN.

Novaia avtomaticheskaia ustanovka dlia zakalki kolenchatykh valov. (Vestn. Mash., 1948, no. 4, p. 36-39)

(New automatic device for hardening crankshafts.)

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

SHEPELYAKOVSKIY, K. L.

"Experience in Operating High-Frequency Installations at the Automobile Plant imeni Stalin," Collection of Data of the Scientific and Technical Session on Electric Power Economy (Sbornik materialov nauchno-tekhnicheskoy sessii po ekonomii elektroenergii), No II, MONITOE, 1949, 139 pp.

All-Union Scientific and Technical Society of Power Engineers Moscow Division, Industrial Electrical Engineering Section.

W - 15368, 6 Dec 50

SHEFELYAKOVSKII, K. Z. and S. E. RYSKIN.

Tekhnika primeneniia induktsionnogo nagreva. Moskva, Mashgiz, 1949. 240 p.

(Technique of the application of induction heating.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

1. [redacted], K.L.: SHKLIYAEV, I.N.

2. USSR (600)

4. Automobile Industry

7. Automatic machine for the transfer of parts heated with high frequency currents. Avt. prakt. no. 11. 1952

9. Monthly List of Russian Accessions, Library of Congress, March, 1953. Unclassified.

SHEPELYAKOVSKIY, K.Z.

Centralized feeding of induction heating installations. [Izdaniia] LONITOMASH no.30:162-173 '52. (MLRA 8:1)
(Induction heating)

SHEPELYANKOVSKIY, K.Z.; SHKLYAROV, I.N.

High-frequency surface hardening of flywheel gear rims. Avt.trakt.prom. no. 11:14a-b '53. (MLRA 6:11)

(Flywheels) (Hard-facing)

SHEPELYAKOVSKIY, K.Z.

SLUKHOTSKIY, A.Ye.; RYSKIN, S.Ye.; SHEPELYAKOVSKIY, K.Z., kandidat tekhnicheskikh nauk, retsenzent; GOLOVIN, G.F., kandidat tekhnicheskikh nauk, redaktor; PETERSON, M.M., tekhnicheskiy redaktor

[Inductors for induction heating of machine construction parts; planning and manufacture] Induktory dlia induktsionnogo nagreva mashinostroitel'nykh detalei; proektirovanie i izgotovlenie. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 319 p. (MLRA 7:11)

(Induction heating) (Machinery industry)

SHEPELYAKOVSKIY, K. Z.

RABIN, M.O.; SHEPELYAKOVSKIY, K.Z.

Surface hardening of malleable ferrite cast iron with high-frequency heating. Lit.proizv. no.9:10-12 D'54. (MLRA 8:2)
(Cast iron--Hardening)

SHEPELYAKOVSKIY, K.Z.

Examining high-frequency surface hardening with self-annealing. (MLRA 8:2)
[Izd.] LONITOMASH no.33:135-153 '54.
(Cementation (Metallurgy))

SHEPELYAKOVSKIY, K.Z.

USSR/ Engineering - Metallurgy

Card : 1/1

Authors : Assonov, A. D., Laurate of the Stalin Prize, Cand. Tech. Sc.; Shepelyakovskiy, K. Z., Cand. Tech. Sc.; Lankin, P. A., Cand. Tech. Sc.

Title : Rapid cementation during heating with high-frequency current

Periodical : Vest. Mash., 34, Ed. 6, 56 - 60, June 1954

Abstract : A comparison is made between cementation method of articles in a furnace without muffles, using vaporized liquid carburizers, and a new method which uses a gas for treating the surface, the article being placed in a muffle and the heat produced by high-frequency current. A complete analysis is given of results obtained with various temperatures and the method is found to be adaptable to high-speed automatic production. Graphs; drawings; tables; illustrations.

Institution : ...

Submitted : ...

SHEPELYAKOVSKIY, Konstantin Zakharovich, kandidat tekhnicheskikh nauk; KRASYUK, B.A., professor, doktor tekhnicheskikh nauk, redaktor; KONTSEVAYA, E.M., redaktor; KRYNOCHKINA, K.V., tekhnicheskiy redaktor

[High frequency surface hardening of steel in machine building] Vysokochastotnaia poverkhnostnaia zakalka stali v mashinostroenii. Moskva, Vses. uchebno-pedagog. izd-vo Trudrezervizdat, 1955. 52 p. (MLRA 8:7)
(Steel--Hardening)

SHEPELYAKOVSKIY, K.Z., kandidat tekhnicheskikh nauk; BOGATYREV, Yu.M., kandidat tekhnicheskikh nauk, retsenzent; KUNYAVSKIY, M.N., kandidat tekhnicheskikh nauk, redaktor; POPOVA, S.M., tekhnicheskiy redaktor

[Self-hardening of steel in high frequency tempering] Samootpusk stali pri vysokochastotnoi zakalke. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1955. 106 p. (MLRA 8:7)
(Steel--Heat treatment)

ASSONOV, A.D., kandidat tekhnicheskikh nauk; SHEPKLYAKOVSKIY, K.Z., kandidat tekhnicheskikh nauk; LANKIN, P.A., kandidat tekhnicheskikh nauk.

Accelerated carburization using high-frequency heating. Metalloved.i obr.met. no.3:39-50 S '55. (MLRA 9:3)

1. Avtozavod imeni Stalina.
(Induction heating) (Cementation (Metallurgy))

ASSONOV,A.D., kandidat tekhnicheskikh nauk, laureat Stalinskoy premii; SHEPELYAKOVSKIY,K.Z., kandidat tekhnicheskikh nauk; LANKIN,P.A., kandidat tekhnicheskikh nauk.

Rapid cementation by means of high frequency heating. Avt. trakt. prom. no.5:(insert) My '55. (MLRA 8:8)

1. Moskovskiy avtozavod imeni Stalina.
(Cementation (Metallurgy)

AID P - 4256

Subject : USSR/Engineering

Card 1/1 Pub. 128 - 14/33

Authors : Shepelyakovskiy, K. Z., Kand. Tech. Sci., and I. N. Shklyarov, Engineer

Title : Automatic heating-forging unit

Periodical : Vest. mash., #1, p. 45-49, Ja 1956

Abstract : Description and design of a unit combining the operation of high-frequency induction heating with stamping or forging of a valve tappet. Diagrams, photos.

Institution : None

Submitted : No date

SHEPELYAKOVSKIY, K.Z., kandidat tekhnicheskikh nauk.

Prospective use of high-frequency heating in automobile and tractor construction. Avt. i trakt. prom. no.3:28-32 Mr '56. (MLRA 9:7)

1.Moskovskiy avtozavod imeni Stalina.
(Metals--Heat treatment) (Electric heating)

SHEPELYAKOVSKIY, G.Z., kandidat tekhnicheskikh nauk.

High-speed cementation. Nauka i zhizn' 23 no.3:47 Mr '56.
(Cementation (Metallurgy)) (MLRA 9:7)

Shepelyakovskiy, K.Z.

USSR/ Engineering - Heating and forging units

Card 1/1 Pub. 128 - 14/33

Authors : Shepelyakovskiy, K. Z., and Shklyarov, I. N.

Title : Automatic heating and forging units

Periodical : Vest. mash. 36/1, 45-49, Jan 1956

Abstract : The Automobile Plant im. Stalin, designed and constructed several devices for induction heating, automatic charging and heading of blanks and small components for automobile engines. Illustrations and drawings of the above mentioned units are given, with a description of their construction, methods of installation and operation. One USSR reference (1955). Diagram; drawings; illustrations.

Institution : .....

Submitted : .....

AUTHOR: Assonov, A.D., Candidate of Technical Sciences, Shepelyakovskiy, K.Z. and Lanikn, P.A. (Moscow)

TITLE: Mechanical Properties of Steel Subjected to High Speed Cementation During High Frequency Heating. (Mekhanicheskiye svoystva stali, Podvergnutoy skorostnoy tsementatsii pri nagreve T B.Ch.).

PERIODICAL: Metallovedenie i obrabotka metallov, 1957, No. 2, pp 46-48 (U.S.S.R.)

ABSTRACT: The influence of high cementation temperatures on the mechanical properties of steel were investigated between 1938 and 1943 by S.S. Stroev who carried out cementation of components in a solid carburizing agent at 1100-1140°C for a period of ten hours. Some of the results obtained by Stroev are reviewed (Tables 1 and 2, p. 46). The authors cite data obtained experimentally as a result of high temperature gas cementation, using high frequency heating, for specimens and gears made from 18XHT steel (composition: 0.16-0.24% C, 0.17-0.37% Si, 0.80-1.10% Mn, 1.00-1.30% Cr, ≤ 0.40% Ni, 0.08-0.15% Ti) after hardening from 870° C and tempering at 200°C; depending on the quality of the melt the values varying

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TITLE: Mechanical Properties of Steel Subjected to High Speed Cementation During High Frequency Heating. (Mekhanicheskiye svoystva stali, Podvergnutoy skorostnoy tsementatsii pri nagreve T.B.Ch.).

within the limits given in Table 4, p. 47. Comparison of these data with data obtained at sub-zero temperature (given in Table 5, p. 47) shows that high temperature heating does not have an adverse effect on the strength properties of steel. The influence of high temperature heating on the strength of steel was also investigated for specimens made from four other types of steel; the resulting mechanical properties are given in Table 6. The data given in Table 7 were obtained for steel heated in vacuum in the Vacuum Metallography Laboratory of the Engineering Research Institute Ac.Sc., under the direction of M.G. Lozinskiy. The data given in Table 8 were obtained after making apparent the grains by the oxidation method. The presence of Ti and Zr carbides in the steel impedes grain growth. Therefore, steel containing such carbides can be heated during carburization to up to 1200°C which permits a considerable shortening of the carburization process. Apparently over-heating Cr-Mn-Ti steel specimens with a naturally fine grain during case hardening does not influence the fatigue limit of this steel.

SHEPELYAKOVSKIY, K Z

25(1) PHASE I BOOK EXPLOITATION SOV/1368

Assonov, Aleksandr Danilovich, Konstantin Zakharovich Shepelyakovskiy, and Petr Aleksandrovich Lankin

Gazovaya tsementatsiya s induktsionnym nagrevom (Gas Carburizing With Induction Heating) Moscow, Mashgiz, 1958. 87 p. 6,000 copies printed.

Reviewer: Lozinskiy, M.G., Doctor of Technical Sciences; Ed.: Shuykov, A.A., Doctor of Technical Sciences; Tech. Ed.: Model', B.I.; Managing Ed. for Literature on Metalworking and Machine-Tool Manufacture (Mashgiz): Beyzel'man, R.D., Engineer.

PURPOSE: This book is intended for engineers and technicians.

COVERAGE: The book deals with the practical aspects of a new method of rapid gas carburizing with immediate quenching, specifically as carried out with high-frequency induction heating. The immediate-quenching aspect required the development of new types of steel, since older methods involved heating after carburization. One such type of steel is that bearing the designation 18KhGT, developed by the Moscow Motor Vehicle Plant in collaboration with

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NAMI (Scientific Institute for Automobile Engines). In 1947 the same plant developed the method of gas carburizing with the aid of induction heating. Industrial application of the method was begun in 1953. The principal significance of the new method lies in the fact that practical use is made of elevated temperatures (1150-1200°C) for carburizing. The effect of these high temperatures on the properties of the cemented layer has to be studied further. The book contains material not previously published, describing methods, tested in practice, of gas-carburizing gear wheels on a mass scale. Techniques and equipment are described in detail. Recommendations are made for the adoption of the new process in industry. The following are mentioned as having taken part in developing the new carburizing method: S.A. Yaitskov, Engineer; I.N. Shklyarov, Engineer; M.O. Rabin, N.V. Senyushkin; A.N. Zhivotovskiy; N.I. Borisov. There are 21 references, all Soviet.

TABLE OF CONTENTS:

SHEPELYAKOVSKIY, K. Z.

PHASE I BOOK EXPLOITATION SOV/5358

Moscow. Dom nauchno-tekhnicheskoy propagandy im. F.E. Dzerzhinskogo

Sovremennyye splavy i ikh termicheskaya obrabotka (Contemporary Alloys and Their Heat Treatment) Moscow, Znaniye, 1958. 389 p. 12,000 copies printed.

Additional Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy RSFSR.

Ed. (Title page): Th. A. Geller, Doctor of Technical Sciences; Ed. (Inside book): G.V. Kharitonkiy, Engineer; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on Metal Working and Tool Making: A.D. Beyel'man, Engineer.

PURPOSE: The book is intended for engineering and technical personnel of heat-treatment shops and test laboratories of machine-building plants.

CONTENTS: This collection of 28 articles, compiled by 33 authors, aims to acquaint the reader with modern practice in the heat treatment of steels. The authors are primarily concerned with the development of various types of structural, tool, and heat-resistant steels and with the use of their alloying elements. Materials-handling equipment is described at some length. The treatment of alloys, particularly those of titanium, also comes within the scope of the collection. The book is thoroughly diagramed, and a good deal of the material is shown in graphical form. Among the problems dealt with are the minimization of deformation, the introduction of the automatic control of heat-treating equipment, together with fully mechanized tool manufacture, and the optimum proportions of different alloying elements. There are numerous tables and drawings. Bibliographic listings placed at the end of chapters are predominately Soviet. The articles comprising this collection are reports delivered at a conference held in the Scientific and Technical Propaganda House named F.E. Dzerzhinskiy in Moscow.

AVAILABLE: Library of Congress

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SOV/137-59-1-1824

Translation from Referativnyy zhurnal Metallurgiya 1959, Nr 1 p 241 (USSR)

AUTHOR: Shepelyakovskiy, K Z

TITLE Heat Treatment of Machine Parts by High-frequency Currents (Termoobrabotka detaley s nagrevom tokami vysokoy chastoty)

PERIODICAL: V sb.: Materialy Soveshchaniya glavn. metallurgov z-dov i in-tov avtomob. prom-sti. Nr 3 Moscow, 1958 pp 81-84

ABSTRACT: The author recommends conversion to high-frequency-current (HFC) surface hardening of certain heavy-duty machine parts such as axles; naturally, for that purpose it is necessary to know which grade of steel should be selected At the present time the plant uses St-40Kh steel for ZIL-150 automobile axles which upon surface hardening are characterized by a torque moment of 1840 kgm and 614,000 cycles prior to fatigue failure. The author points out the expediency of a more extensive study of the carburization process using HFC heating. To achieve this a suitable technology and composition of the gas carburizer should be developed. At the im Likhachev plant work is carried out on the surface hardening of gears by HFC heating

A. B

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SHIPULINOVSKIY, N. L.

129-4-12/12

AUTHOR: Rustem, S.L.

TITLE: All-Union Conference on industrial use of high frequency currents held in Leningrad. (Vsesoyuznoye soveshchaniye po promyshlennomu primeneniyu t.v.ch. v g. Leningrade).

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.4, pp. 61-64 (USSR).

ABSTRACT: The conference held in November, 1957 was convened by the Leningrad Scientific and Technical Society of the Engineering and Power Generation Industry (Leningradskoye Nauchno-Tekhnicheskoye Obshchestvo Mashinostroitel'noy i Energeticheskoy Promyshlennosti). The task of the conference was to report on advanced experience, to discuss achievements in this field outside the Soviet Union and to evolve recommendations for expanding the use of high frequency in industry and introduction of progressive technology and also evolving organisational measures for improving the quality of high frequency equipment and apparatus. The conference included sections for induction heating technology, metals technology, non-conducting materials and equipment.
Candidate of Technical Sciences, M.A. Spitsyn (NII TVCh imeni V. P. Vologdin) read the paper "New developments in the field of industrial application of high frequency

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